Si magic-angle-spinning nuclear magnetic resonance study of hydrated cement paste and mortar

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Abstract: This paper presents measurements that trace the cement hydration process in cement paste and mortar specimens made from ordinary portland cement, type I. These specimens were moist-cured for 3, 7, 14, and 28/31 d at temperatures ranging from 21° to 80°C. Compressive strength for all tested specimens was also determined. The results show that the degree of hydration and the compressive strength increase with curing times and temperatures. However, at 80°C, the compressive strength decreases while the degree of hydration increases.